CLAIMS

1. An apparatus comprising:

a first information receiving apparatus having a first group address,

a second information receiving apparatus having a second group address, and

an information transmitting apparatus in communication with the first and second information receiving apparatus via a network, the information transmitting apparatus being arranged and constructed to (1) transmit via the network two or more blocks of data subdivided from a designated information together with the first group address for the first information receiving apparatus in response to receiving a request to transmit the designated information from the first information receiving apparatus, (2) transmit via the network one ore more blocks of data that have not yet been transmitted to the first information receiving apparatus with the first group address and the second group address for the second information receiving apparatus, in response to receiving a request to transmit the designated information from the second information receiving apparatus prior to transmitting all blocks of data, which contain the designated information, to the first information receiving apparatus, and (3) transmit via the network one or more blocks of data already transmitted to the first receiving apparatus with the second group address, wherein the first and second information receiving apparatus are further arranged and constructed to send the request to transmit the designated information to the information transmitting apparatus, receive blocks of data via the network, wherein the group address of the received blocks of data are identical to the respective group addresses, and store the received blocks of data in a storage device.

2. An apparatus according to claim 1, wherein the information transmitting apparatus is arranged and constructed to transmit each block of data with the subdivision sequence information indicating the sequence of each block of data, and the first and second information receiving apparatus are arranged and constructed to reconstitute the information based upon the received blocks of data and the subdivision sequence information of each block of data.

3. An apparatus according to claim 1, wherein the information transmitting apparatus is arranged and constructed to cyclically transmit the blocks of data subdivided from the designated information apparatus in a predetermined sequence, when the information transmitting apparatus receives another request to transmit the designated information from another information receiving apparatus prior to transmitting all blocks of data subdivided from the designated information.

4. An apparatus according to claim 1, wherein the information transmitting apparatus further comprises a storage device for storing blocks of data, wherein the information transmitting apparatus is further arranged and constructed to read blocks of data from the storage device in a predetermined sequence and transmit blocks of data via the network.

5. An apparatus according to claim 1, further comprising an information supply device arranged and constructed to supply information, wherein the information transmitting apparatus is arranged and constructed to transmit via the network each block of data subdivided from the information supplied from the supplying device together with a subdivision sequence information indicating the sequence of each block of data.

6. An apparatus according to claim 5, wherein the information transmitting apparatus is further arranged and constructed to (1) store each block of data and a subdivision sequence information of each block of data in a storage device in the predetermined sequence, (2) read each block of data and the subdivision sequence information from the storage device in the predetermined sequence and (3) transmit each block of data and the subdivision sequence information via the network in response to receiving a transmit request for the designated information supplied by the information supply apparatus.

7. An apparatus according to claim 5, wherein the information transmitting apparatus is further arranged and constructed to (1) store each block of data and a subdivision sequence information of each block of data in a storage device, (2) read each block of data and the subdivision sequence information from the storage apparatus in the sequence specified by the subdivision sequence information and (3) transmit each block

of data and the subdivision sequence information via the network in response to receiving a request for the designated information supplied from the information supply apparatus.

8. An apparatus according to claim 1, wherein the information transmitting apparatus is further arranged and constructed to append error detection/correction information to each block of data and transmit each block of data, and the first and second information receiving apparatus are further arranged and constructed to perform error detection and error correction based upon the appended error detection/correction information received together with the block of data.

9. An apparatus according to claim 2, wherein the first and second information receiving apparatus are further arranged and constructed to determine whether each block of data has been correctly received based upon the subdivision sequence information within each block of data.

10. An apparatus according to claim 1, wherein the first information receiving apparatus is arranged and constructed to transmit a request to retransmit a block of data to the information transmitting apparatus, and the information transmitting apparatus is arranged and constructed to retransmit the requested block of data to the first information receiving apparatus upon receiving the request to retransmit request, the first information receiving apparatus being further arranged and constructed to receive and store the retransmitted block of data from the information transmitting apparatus.

11. An apparatus according to claim 10, wherein the information transmitting apparatus further comprises:

a first storage device for storing blocks of data that will be transmitted, and

a second storage device for storing blocks of data that will be retransmitted, wherein the information transmitting apparatus is arranged and constructed to read blocks of data from the first storage device after receiving a transmit request, and to read blocks of data from the second storage device after receiving a retransmit request.

12. An apparatus according to claim 10, wherein the information transmitting apparatus is further arranged and constructed to transmit via the network all blocks of data, which contain the designated information including the block of data requested to be retransmitted, in response to receiving a retransmit request for at least one block of data.

13. An apparatus according to claim 10, wherein the information transmitting apparatus is arranged and constructed, in response to receiving a retransmit request from the first or second information receiving apparatus, to determine whether to specify the address of the respective information receiving apparatus that sent the retransmit request or to specify the group address previously set for the respective information receiving apparatus that sent the retransmit request as the address of the block of data requested to be retransmitted, based on an evaluated result of bandwidth utilization status of the network.

14. An apparatus according to claim 13, wherein the information transmitting apparatus is further arranged and constructed to evaluate the bandwidth utilization status of the network based upon a comparison of a limit value and the number of blocks of data requested to be retransmitted.

15. An apparatus according to claim 13, wherein the information transmitting apparatus is further arranged and constructed to inform the first information receiving apparatus, which has sent a request to retransmit, of the evaluated result, and the first information receiving apparatus is further arranged and constructed to select a transmission method for receiving the block of data, which was requested to be retransmitted, based upon the evaluated result provided by the information transmitting apparatus.

16. An apparatus according to claim 1, wherein the information transmitting apparatus is further arranged and constructed to regulate the number of blocks of data transmitted via the network such that the quantity of data on the network per unit time does not exceed a pre-determined quantity.

17. An apparatus according to claim 1, wherein the information transmitting apparatus

is arranged and constructed, in response to receiving a transmit request from the first or second information receiving apparatus, to transmit the group address for the first or second information receiving apparatus to the first or second information receiving apparatus, and the first and second information receiving apparatus are arranged and constructed to store the group address transmitted from the information transmitting apparatus as its own group address.

18. An apparatus according to claim 1, wherein the information transmitting apparatus is further arranged and constructed, in response to receiving a transmit request from the first or second information receiving apparatus, to set the network, wherein blocks of data transmitted from the information transmitting apparatus will arrive at the first or second information receiving apparatus.

19. A method for communicating information comprising:

transmitting a request for designated information from a first information receiving apparatus to an information transmitting apparatus,

transmitting the requested designated information from the information transmitting apparatus to the first information receiving apparatus in response to receiving the request to transmit the designated information, wherein the designated information is subdivided into blocks of data and the blocks of data are sequentially sent to the first information receiving apparatus, and wherein each block of data further includes a first group address corresponding to the first information receiving apparatus,

transmitting another request for the designated information from a second information receiving apparatus to the information transmitting apparatus,

transmitting blocks of data not yet transmitted to the first information receiving apparatus together with the first group address and a second group address corresponding to the second information receiving apparatus in response to receiving the transmit request from the second information receiving apparatus, wherein a middle block of data is first sent to the second information receiving apparatus prior to all blocks of data having been sent to the first information receiving apparatus, and

transmitting blocks of data with only the second group address that were previously transmitted to the first information receiving apparatus, wherein less than all

blocks of data are transmitted with only the second group address.

20. A method according to claim 19, further comprising transmitting each block of data with subdivision sequence information, which subdivision sequence information enables the first and second information receiving apparatus to reconstitute the blocks of data into the designated information.

21. A method according to claim 19, further comprising cyclically transmitting each block of data subdivided from the requested information in a predetermined sequence as long as requests to transmit are received from information receiving apparatus prior to transmitting all blocks of data that comprise the requested information.

22. An apparatus for communicating information comprising:

means for transmitting a request for designated information from a first information receiving apparatus to an information transmitting apparatus,

means for transmitting the requested designated information from the information transmitting apparatus to the first information receiving apparatus in response to receiving the request to transmit the designated information, wherein the designated information is subdivided into blocks of data and the blocks of data are sequentially sent to the first information receiving apparatus, and wherein each block of data further includes a first group address corresponding to the first information receiving apparatus,

means for transmitting another request for the designated information from a second information receiving apparatus to the information transmitting apparatus,

means for transmitting blocks of data not yet transmitted to the first information receiving apparatus together with the first group address and a second group address corresponding to the second information receiving apparatus in response to receiving the transmit request from the second information receiving apparatus, wherein a middle block of data is first sent to the second information receiving apparatus prior to all blocks of data having been sent to the first information receiving apparatus, and

means for transmitting blocks of data with only the second group address that

were previously transmitted to the first information receiving apparatus, wherein less than all blocks of data are transmitted with only the second group address.

23.   A method for communicating information over a network comprising:

dividing data for distribution over said network into sequentially ordered X blocks;

receiving a first dispatch request seeking said data from a first client;

transmitting a first group address via said network to said first client;

sequentially transmitting each of said X blocks, commencing with a first block of said X blocks, to said first client;

receiving a second dispatch request seeking said data from a second client;

transmitting a second group address via said network to said second client;

sequentially transmitting all remaining blocks of said X blocks that have not yet been sent to said first client to said first client and said second client; and

starting with said first block, sequentially transmitting all of said X blocks which have not yet been sent to said second client.

24.   The method of claim 23 wherein said sequentially transmitting each of said X blocks step and said sequentially transmitting all remaining blocks of said X blocks steps further comprises appending sequence information into each of said X blocks.

25.   The method of claim 23 wherein said sequentially transmitting each of said X blocks step and said sequentially transmitting all remaining blocks of said X blocks steps further comprise appending error correction information into each of said X blocks.

26.   The method of claim 25 further comprising:

receiving a retransmit request from at least one of said first client and said second client, said retransmit request containing information regarding which of said X blocks that must be retransmitted; and

determining whether the number of said X blocks that must be retransmitted exceeds a predetermined value.

27.   The method of claim 26 wherein the number of said X blocks that must be retransmitted is equal to or greater than said predetermined value, further comprising:

transmitting a third group address via said network; and

transmitting said X blocks that must be retransmitted via said network.

28.   The method of claim 26 wherein the number of said X blocks that must be retransmitted is less than said predetermined value, further comprising:

establishing a communication connection in said network with whichever of said first client and/or said second client that sent said retransmit request; and

transmitting said X blocks that must be retransmitted via said network over said communication connection.